

What is claimed is:

- 1 1. In a method for performing failure analysis on a printed circuit board having a circuit  
2 trace thereon and a solder mask over the circuit trace, the improvement comprising:  
3 removing the solder mask from the printed circuit board using an ultra violet laser, to  
4 expose the circuit trace without damaging the circuit trace.
- 1 2. The method of claim 1, wherein the ultraviolet laser has a wavelength of from about 3  
2 nanometers to about 400 nanometers.
- 1 3. The method of claim 1, wherein the ultraviolet laser has a wavelength from the group  
2 consisting of 355 nanometers and 266 nanometers.
- 1 4. The method of claim 1, wherein the ultraviolet laser is one of the group consisting of a  
2 solid state laser, a gas laser, a dye laser, and an excimer laser.
- 1 5. The method of claim 4, wherein the ultraviolet laser is a yttrium aluminum garnet laser.
- 1 6. The method of claim 1, wherein the solder mask comprises an organic compound.
- 1 7. The method of claim 1, wherein the solder mask comprises a thermosetting resin.
- 1 8. The method of claim 7, wherein the solder mask comprises a film selected from the group  
2 consisting of polyimide and cyanate ester resins and a dual solution photo-curing type material  
3 containing an unsaturated resin that includes carboxylic acid and a polyepoxy compound.
- 1 9. A method comprising the steps of:  
2 providing a printed circuit board having a circuit trace thereon and a solder mask over the  
3 circuit trace;  
4 removing the solder mask from the printed circuit board using an ultra violet laser, to  
5 expose the circuit trace without damaging the circuit trace; and  
6 performing failure analysis on the circuit trace of the printed circuit board.

- 1 10. The method of claim 8, wherein the ultraviolet laser has a wavelength of from about 3  
2 nanometers to about 400 nanometers.
- 1 11. The method of claim 9, wherein the ultraviolet laser has a wavelength from the group  
2 consisting of 355 nanometers and 266 nanometers.
- 1 12. The method of claim 9, wherein the ultraviolet laser is one of the group consisting of a  
2 solid state laser, a gas laser, a dye laser, and an excimer laser.
- 1 13. The method of claim 12, wherein the ultraviolet laser is a yttrium aluminum garnet laser.
- 1 14. The method of claim 9, wherein the solder mask comprises an organic compound.
- 1 15. The method of claim 9, wherein the solder mask comprises a thermosetting resin.
- 1 16. The method of claim 15, wherein the solder mask comprises a film selected from the  
2 group consisting of polyimide and cyanate ester resins and a dual solution photo-curing type  
3 material containing an unsaturated resin that includes carboxylic acid and a polyepoxy  
4 compound.
- 1 17. A printed circuit board suitable for failure analysis, the printed circuit board being  
2 prepared by a method comprising the steps of:  
3 providing a printed circuit board having a circuit trace thereon and a solder mask over the  
4 circuit trace;  
5 removing the solder mask from the printed circuit board using an ultra violet laser, to  
6 expose the circuit trace without damaging the circuit trace, thereby readying the printed circuit  
7 board for performing failure analysis on the circuit trace thereof.
- 1 18. The printed circuit board of claim 17, wherein the ultraviolet laser has a wavelength of  
2 from about 3 nanometers to about 400 nanometers.

1 19. The printed circuit board of claim 17, wherein the ultraviolet laser has a wavelength from  
2 the group consisting of 355 nanometers and 266 nanometers.

1 20. The printed circuit board of claim 17, wherein the ultraviolet laser is one of the group  
2 consisting of a solid state laser, a gas laser, a dye laser, and an excimer laser.

1 21. The printed circuit board of claim 20, wherein the ultraviolet laser is a yttrium aluminum  
2 garnet laser.

1 22. The printed circuit board of claim 17, wherein the solder mask comprises an organic  
2 compound.

1 23. The method of claim 17, wherein the solder mask comprises a thermosetting resin.

1 24. The printed circuit board of claim 23, wherein the solder mask comprises a film selected  
2 from the group consisting of polyimide and cyanate ester resins and a dual solution photo-curing  
3 type material containing an unsaturated resin that includes carboxylic acid and a polyepoxy  
4 compound.

1 25. A device suitable for failure analysis, the device being prepared by a method comprising  
2 the steps of:

3 providing a substrate having a circuit trace thereon and a solder mask over the circuit  
4 trace;

5 removing the solder mask from the substrate using an ultra violet laser, to expose the  
6 circuit trace without damaging the circuit trace, thereby readying the substrate for performing  
7 failure analysis on the circuit trace thereof.

1 26. The device of claim 25, wherein the ultraviolet laser has a wavelength of from about 3  
2 nanometers to about 400 nanometers.

1 27. The device of claim 25, wherein the ultraviolet laser has a wavelength from the group  
2 consisting of 355 nanometers and 266 nanometers.

1 28. The device of claim 25, wherein the ultraviolet laser is one of the group consisting of a  
2 solid state laser, a gas laser, a dye laser, and an excimer laser.

1 29. The device of claim 28, wherein the ultraviolet laser is a yttrium aluminum garnet laser.

1 30. The device of claim 25, wherein the solder mask comprises an organic compound.

1 31. The device of claim 25, wherein the solder mask comprises a thermosetting resin.

1 32. The device of claim 25, wherein the solder mask comprises a film selected from the  
2 group consisting of polyimide and cyanate ester resins and a dual solution photo-curing type  
3 material containing an unsaturated resin that includes carboxylic acid and a polyepoxy  
4 compound.